

### REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Office Action dated June 26, 2006 (U.S. Patent Office Paper No. 20060621). In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

#### Status of the Claims

As outlined above, claims 1, 3-5 and 7-18 stand for consideration in this application, wherein claims 14 and 16 are being amended to correct formal errors and to more particularly point out and distinctly claim the subject invention. All amendments to the application are fully supported therein. Applicant hereby submits that no new matter is being introduced into the application through the submission of this response.

#### Formal Objections

The Examiner objected to the Title of the Disclosure as being non-descriptive, and objected to claims 14 and 16 for various informalities, and has requested that corrections be made. However, the Examiner did provide suggested changes that would overcome his objections.

As outlined above, the Title of the Invention, as well as claims 14 and 16 have been amended in accordance with the Examiner's requirements. Applicant thus submits that all formal requirements from the Examiner have been met.

#### Prior Art Rejections

The Examiner rejected claims 1, 3-5, 7-8, 14 and 18 under 35 U.S.C. § 103(a) as being unpatentable over US Application No. 2002/0024153 A1 to Yoshida et al. in view of US Patent No. 5,296,717 to Valster and a newly cited reference US Pat. Pub. No. 2004/0195509 of Sundaram et al.

Further, the Examiner again rejected claim 11 under 35 U.S.C. § 103(a) as being unpatentable over Yoshida '153, Valster '717, Sundaram '509 in view of US Patent No. 5,354,707 to Chapple-Sokol et al., claim 15 as being unpatentable over Yoshida '153, Valster '717, Sundaram '509 in view of US Patent No. 6,394,655 to Hayashi, claim 16 as being unpatentable over Yoshida '153, Valster '717, Sundaram '509 in view of US Patent No. 6,741,538 B2 to Momoo et al, and claim 17 as being unpatentable over Yoshida '153, Valster

'717, Sundaram '509 in view of US Patent No. 5,625,729 to Brown. Applicant has reviewed the above-outlined prior art rejections, and hereby respectfully traverse.

The present invention as now recited in claim 1 is directed to an optical head that comprises a light source for emitting a light beam, a lens for focusing the light beam onto a medium, and a detector for detecting a reflected light beam from the medium, wherein the light source comprises a semiconductor laser comprising an active layer and a barrier layer, the active layer being an indirect semiconductor, the indirect semiconductor having an asymmetric quantum well structure in which band structures of a conduction band and a valence band are left-right asymmetric with respect to a center of the quantum well structure in a band structure pattern.

In contrast to the present invention, the reference of Yoshida merely describes in paragraph [0042] that "visible lights are emitted at room temperature at an external quantum efficiency of 0.1 to 1.0%". Applicants will respectfully point out that such an external quantum efficiency relates to light but cannot and does not to lasers. Lasers, as is known in the art, have typical external quantum efficiencies of 30 to 70%. As such, Yoshida cannot and does not provide any disclosure, teaching or suggestion that is applicable to an optical head having a laser light source, as in the present invention.

The secondary reference of Valster discloses to use InAlGaP as an active layer. According to the table on column 7, layer 3 comprises:

In<sub>0.5</sub>Ga<sub>0.5</sub>P(8x)5 nm. + In<sub>0.5</sub>Al<sub>0.25</sub>P(7x)4 nm

The Al content of the InAlGaP active layer is 0.25 to 0.5, which is an Al content less than 0.85. Applicants will point out that this means that the InAlGaP active layer is a direct semiconductor, not an indirect semiconductor. With the mixed ratio disclosed in Valster, InAlGaP cannot be an indirect semiconductor. As such, Valster cannot and does not disclose, teach or suggest an indirect semiconductor, but instead discloses the structure of the most typical and well known visible red semiconductor laser in which InAlGaP is deposited on GaAs substrate.

With respect to the tertiary reference of Sundaram '509, this reference is a continuation-in-part of Application No. 09/746,956, which was filed 12/22/2000 and of Application No. 10/781,523, which was filed 2/18/2004. Though the filing date of the parent Application No. 09/746,956 pre-dates the US filing date (2/26/2002) of the present application, the filing date of the latter Application No. 10/781,523 is later than the US filing

date (2/26/2002) of the present application. Accordingly, Application No. 10/781,523 cannot be cited as prior art against the present application.

Further, neither the parent Application No. 09/746,956 nor Application No. 10/781,523 discloses or suggests asymmetric quantum well structures. Rather, the disclosure on asymmetric quantum well structures was only introduced in Sundaram '509, which was filed after filing date of the present application. Therefore, Sundaram '509 also cannot be cited as prior art. Even more, to the extent Sundaram '509 "discloses" asymmetric wells, this reference only discloses a photodetector using Group III material (Ga, In, Al, As, P) and the word of "asymmetric wells". This reference otherwise does not disclose or suggest a light-emitting element or a laser.

As a result, Applicant will strongly but respectfully contend that the neither Yoshida, Valster, Sundaram '509 nor their combination can render obvious each and every feature of the present invention, nor even the combination of features of the present invention. Instead, each reference as shown above embodies deficiencies that cannot be cured by the other references. In particular, because of the disparities in their teachings, Applicant will contend that there is no teaching or suggestion in any of the above-noted references that would motivate their combination in a manner so as to embody all the features of the present invention. Rather, Applicant will contend that the only motivation for combining their teachings is the Examiner's firsthand knowledge of the present invention's disclosure.

Applicant will respectfully contend that the Examiner fails to establish a prima facie case of obviousness by properly bridging the proposed modification of the references necessary to arrive at the claimed subject matter (see MPEP §706.02(j)). It is well established that the Examiner is not allowed to select bits and pieces from each reference, and then combining those bits and pieces using knowledge or hindsight gleaned from the disclosure of the present invention as a guide to support the combination. Rather, each prior art reference must be evaluated as an entirety, and all of the prior art must be considered as a whole," *Panduit Corp. v. Dennison Mfg. Co.*, 227 USPQ 337, 344 (Fed. Cir. 1985). See *Paradigm Mfg, Inc. v. SGS Importers Intl., Inc.*, 73 F.3d 1085, 37 USPQ2d 1237 (Fed. Cir. 1995) ("Obviousness may not be established using hindsight or in view of the teachings or suggestions of the inventor."). In this case, the Examiner is using his hindsight knowledge of the claimed invention to read elements from each of the references without a clear showing of any motivation to combine the references.

It is well established that, to reach a non-hindsight driven conclusion as to whether a person having ordinary skill in the art at the time of the invention would have viewed the

subject matter as a whole to have been obvious in view of multiple references, [one] must provide some rationale, articulation, or reasoned basis to explain why the conclusion of obviousness is correct. A suggestion, teaching, or motivation to combine the relevant prior art teachings does not have to be found explicitly in the prior art, as the teaching, motivation, or suggestion may be implicit from the prior art as a whole, rather than expressly stated in the references. The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art. See *In re Leonard R. Kahn*, 441 F.3d 977, 78 USPQ2d 1329 (Fed. Cir. 2006), citing *In re Kotzab*, 217 F.3d 1365, 1370 (Fed.Cir. 2000).

In this case, Applicant has pointed out that the references are each directed to subject matter not related to the present invention or lacking in subject relating to the present invention. As such, Applicant will contend that there can be no motivation to combine such references absent firsthand knowledge of the present invention. Consequently, the present invention as a whole is distinguishable and thereby allowable over at least Yoshida, Valster and Sundaram '509.

As to the remaining cited references, all these references are only cited for showing features from dependent claims. None of these references provides any disclosure, teaching or suggestion that makes up for the deficiencies in the first three references, and thus these references by themselves fall far short of rendering obvious any of the features or the combination of features of the present invention. The present invention as a whole is distinguishable and thereby allowable over all the prior art cited.

#### Allowable Subject Matter

Applicant again thanks the Examiner for holding that claims 9, 10, 12, and 13 would be allowed if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant acknowledges the Examiner's statement of reasons for allowance as set forth in the Office Action. However, Applicant will point out that the reasons for allowability of the above referenced claims are not limited to the reasons for allowance as set forth in the Office Action.

As to dependent claims 9, 10, 12, and 13, the arguments set forth above with respect to independent claim 1 are equally applicable here. The base claim being allowable, claims 9, 10, 12, and 13 must also be allowable in the form of a dependent claim.

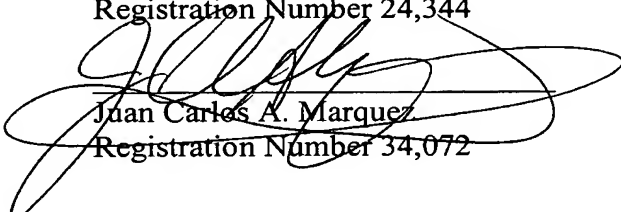
### Conclusion

In view of all the above, Applicant respectfully submits that certain clear and distinct differences as discussed exist between the present invention as now claimed and the prior art references upon which the rejections in the Office Action rely. These differences are more than sufficient that the present invention as now claimed would not have been anticipated nor rendered obvious given the prior art. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application as amended is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicant's undersigned representative at the address and phone number indicated below.

Respectfully submitted,

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